TABLE 7—Measurements in mm of *Anchura nanaimoensis* (Whiteaves). For abbreviations and symbols used, see introduction.

Specimen	H	Hp	Db	Dp	Dp/Hp	R	PA	S	Ct	Cp	A	Remarks
GSC 5763	17.0	—	—	—	—	—	19°	—	8	3	—	latex pull
GSC 5763a	17.8	4.3	—	6.9	1.72	—	22°	—	8	3	14	4 spire whorls
GSC 5763c	14.3	3.4	—	—	—	—	20°	—	7	3	—	3.5 spire whorls

Coast. Although it has both axial and spiral sculpture on the early whorls, the axial ribs are much weaker and finer on the more mature whorls than in *A. callosa, A. falciformis,* or *A. phaba.* In addition, its peripheral angulation is stronger, its parietal callus is more protuberant than in the above species, and it has one dominant basal spiral with a subdominant spiral below and a weaker cord above. Its whorl profile differs from that of *A. falciformis* and *A. callosa* in being concave adapical to the median angulation.

The specimen, hypotype LACMIP 11340, upon which the description of the early whorls is based, is a nearly complete specimen. Although the mature whorls of this specimen are too crushed to photograph well, they allow identification of the species.

Type specimens.—Holotype LACMIP 6465; paratypes LACMIP 6466–6471, IGM 3284; hypotypes LACMIP 11340 from UCLA locality 7235, 11339 from LACMIP locality 8068.

Type locality.—LACMIP 2858, top of south slope, north fork of Ammonite Ravine, Arroyo Santa Catarina, Baja California, Mexico.

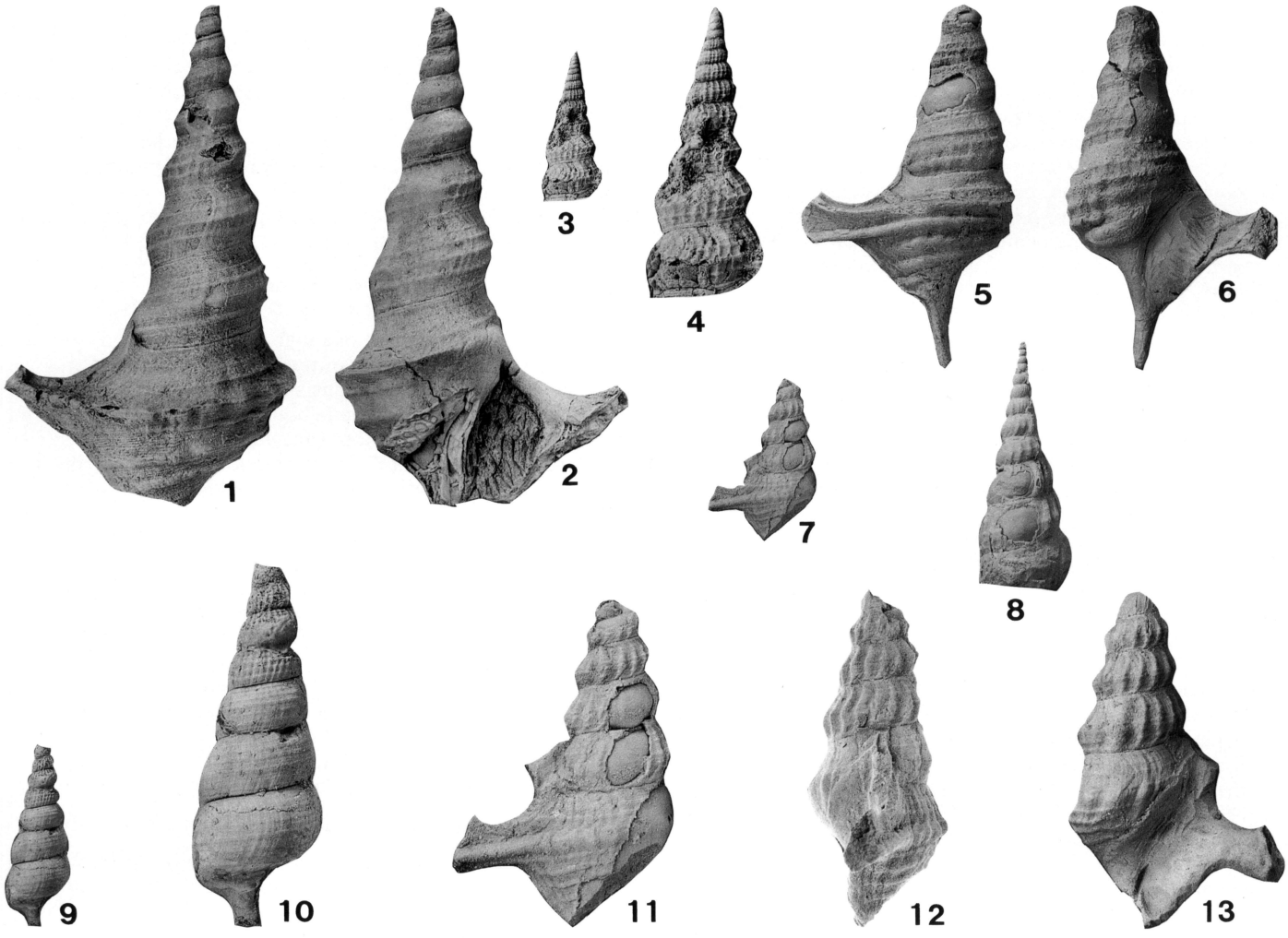

FIGURE 6—*1–4, Anchura gibbera* Webster. *1, 2,* Hypotype, abapertural and apertural views, ×1, LACMIP 11339, locality LACMIP 8068; *3, 4,* hypotype, abapertural view of juvenile, ×1 and ×2, LACMIP 11340, locality UCLA 7235. *5, 6, Anchura baptos* new species, holotype, abapertural and apertural views, ×1, USNM 485427, locality M5906. *7, 11–13, Anchura (Helicaulax?) popenoei* new species, holotype, abapertural, side, and apertural views, ×1 (*7*), and ×2 (*11–13*), LACMIP 11342, locality UCLA 5990. *8, Anchura (Helicaulax) tricosa* Saul and Popenoe, hypotype, side view showing varices, ×1.5, LACMIP 11343, locality CIT 92. *9, 10, Anchura?* new species, abapertural view, ×1 and ×2, LACMIP 11341, locality CIT 1545.

TABLE 8—Measurements in mm of *Anchura gibbera* Webster. For abbreviations and symbols used, see introduction.

Specimen	H	Hp	Db	Dp	Dp/Hp	R	PA	S	Ct	Cp	A	Remarks
LACMIP 6465	70	10.8	—	16.6	1.54	—	19°	16.0	4	2	—	body + 4.5 whorl
LACMIP 11339	70.8	11.7	31.8	18.2	1.56	—	24°	—	4	2	—	body + 7 whorls
LACMIP 11340	62.5	10.9	22.2	16.7	1.53	—	26°†	—	4	2	—	body + 7 whorls

Measured specimens.—See Table 8.

Age.—Late Campanian to early Maastrichtian, *Pachydiscus ootocodensis* (?), *Didymoceras hornbyense,* and *Pachydiscus (Neodesmoceras) catarinae* Zones.

Geographic distribution.—Point Loma Formation, Carlsbad, (UCLA 7235) San Diego County, Calif.; Rosario Formation, Punta San Jose (LACMIP 8068), Arroyo Santa Catarina, Baja California, Mexico.

ANCHURA BAPTOS new species
Figure 6.5, 6.6

Diagnosis.—*Anchura* with axial sculpture reduced to nodes and three to four spiral cords on spire whorls; lower two extend onto shank at wing.

Description.—Shell moderately large, high-spired, drawn out anteriorly into a very narrow, moderately long, backwardly bent rostrum; pleural angle about 28 degrees; whorls angled medially, slightly concave posterior to middle and convex anteriorly; suture appressed. Sculpture on earliest preserved whorl of arcuate axial ribs and three strong spiral cords; medial cord strongest, forming the angulation, posterior cord weakest; axial ribs becoming weaker on more mature whorls, reduced to barely more than nodes on cords by penultimate whorl; ultimate whorl with six cords (three equally spaced, additional cords anterior to three of spire), anterior cord weakest; three cords of spire extended onto shank of wing; posterior cord meeting posterior edge near center of posterior sulcus; median cord forming keel of wing, and anterior cord forming secondary anterior angulation. Outer lip expanded to form wing with short shank. Aperture with broad posterior sulcus and broad anterior sulcus delineated posteriorly by parietal callus pad. Inner lip expanded onto whorl face, developing a spirally elongate, thick callus pad, thickest along fifth cord but overlapping onto fourth and sixth cords.

Remarks.—*Anchura baptos* is based on one incomplete specimen consisting of five whorls, including the body whorl, most of the rostrum, and the shank of the wing. The shank is relatively narrow and lacks secondary spurs. The shell is recrystallized and some surface details such as growth lines have been lost.

In its sculpture, *A. baptos* is most similar to *A. gibbera* and *A. phaba.* It differs from *A. gibbera* in having a wider pleural angle, one less cord on the whorls of the spire, and a lower, more elongate parietal callus pad. It differs from *A. phaba* and geologically older Pacific Slope *Anchura* species in having the axial ribs of the mature whorls reduced to no more than nodes on the cords and in having fewer spiral cords. *Anchura baptos* is the only Pacific Slope species to have two strong cords extending onto the shank and presumably the wing. Four specimens from the San Francisquito Formation on Warm Springs Mountain, Los Angeles County, California, are probably also this species. The specimen from LACMIP 14313 was associated with *Roudairia squiresi* Kirby and Saul, 1995, and is considered to be of latest Maastrichtian age. LACMIP 14314 is eight meters upsection from LACMIP 14313, and the three specimens from this higher horizon are associated with *Turritella peninsularis quaylei* Saul, 1983, and considered to be of early Danian age (Kirby, 1991). The San Francisquito Formation specimens differ from the Dip Creek specimen in having a fourth adapical cord on the spire. This cord is weaker than the other cords and may be variably present.

Type specimen.—Holotype USNM 485427.

Type locality.—USGS locality M5906, east side of Dip Creek, 2300'S, 1000'W of NE corner sec. 30, T25S, R10E, Lime Mountain quadrangle, San Luis Obispo County, California.

Measurements.—See Table 9.

Age.—Latest Maastrichtian, *Turritella peninsularis adelaidana* Zone to early Danian *Turritella peninsularis quaylei* Zone.

Geographic distribution.—The type locality on Dip Creek, San Luis Obispo County, and two localities [LACMIP 14313 (1 specimen) and 14314 (3 specimens)] near the base of the San Francisquito Formation on Warm Springs Mountain, Los Angeles County, California.

Etymology.—The name *baptos,* Greek, dipped, dyed, refers to the type locality on Dip Creek.

ANCHURA? new species
Figure 6.9, 6.10

Discussion.—A fragment of a high-spired gastropod from the Tierra Loma Shale Member of the Moreno Formation may be an *Anchura.* The specimen consists of about seven whorls, the earliest preserved of which have both fine arcuate axial ribs and spiral cords giving an almost cancellate appearance. The ribs and cords form nodes at their intersections. The axial ribs fade on the fourth whorl leaving about six primary spiral cords plus intermediaries. The cords appear to be fading on the last whorl. The whorl profile is rounded and there is no indication of a keel on any whorl.

Sculpture of the earliest whorls of this specimen is similar to that of young *A. gibbera,* but reduced sculpture from the fourth whorl on is distinctly different from any other Pacific Slope *Anchura* species.

Figured specimen.—LACMIP 11341 from CIT locality 1545 = LACMIP 8147, Laguna Seca section, Merced County, California

Measured specimen.—See Table 10.

Age.—Early late Maastrichtian

Subgenus HELICAULAX Gabb, 1868

Type species.—*Rostellaria ornata* d'Orbigny, 1843, by subsequent designation (Cossmann, 1904), from the Turonian of France.

TABLE 9—Measurements in mm of *Anchura baptos* new species. For abbreviations and symbols used, see introduction.

Specimen	H	Hp	Db	Dp	Dp/Hp	R	PA	S	Ct	Cp	A	Remarks
USNM 485427	52.5	8.0	21.0	15.0	1.88	10.1	28°	11.1	3	1	—	body + 4 whorls

TABLE 10—Measurements in mm of *Anchura*? new species. For abbreviations and symbols used, see introduction.

Specimen	H	Hp	Db	Dp	Dp/Hp	R	PA	S	Ct	Cp	A	Remarks
LACMIP 11341	27.8	4.9	9.6	8.7	1.78	—	18°	—	6	—	—	juv.

Discussion.—In overall shape and type of sculpture, *Helicaulax* resembles *Anchura* but differs in having an additional elongate, reflexed posterior digitation that is adnate to the spire for most of its length (Sohl, 1960, p. 103). Sohl (1960) considered *Anchura* and *Helicaulax* to be closely related. However, Roy (1994) divided 33 aporrhaid genera including *Anchura* and *Helicaulax* into two morphologic groups, placing *Helicaulax* into one group, M1 with multidigitate apertures, and *Anchura* into the other group, M2 with simpler apertures. Saul and Popenoe (1993) included *Anchura (Helicaulax) condoniana* (Anderson, 1902) and *A. (H.) tricosa* Saul and Popenoe, 1993, in *Helicaulax* on the basis of their having an elongate, reflexed posterior digitation adjacent to but not adnate to the spire, straight rostra, and spurs along the shank of the wing. The latter two characteristics do not, however, separate *Helicaulax* from some *Anchura* species, which also display straight rostra and spurs along the shank. Campanian and Maastrichtian faunas of the Gulf Coast contain several species placed in *Anchura* that have short posterior digitations (i. e., *A. chapelvillensis* Dockery, 1993 and *A. corniculata* Dockery, 1993), but none of these digitations approach the length of those of *A. (H.) tricosa.* This prominent digitation gives *A. (H.) tricosa* a multidigitate apertural margin like that of *Helicaulax* and removes it from Roy's M2 group. Roy (1994) listed 25 characteristics that he used in differentiating genera of aporrhaids; six of these separate *Helicaulax* from *Anchura.* All six, however, relate to the posterior digitation. As species having a very short posterior digitation are included in *Anchura,* the distinction depends upon the length of the digitation and the length of its attachment to the spire. Based on these criteria, species such as *A. (H.) tricosa* do not fit neatly into either *Anchura* s. s. or *Helicaulax.* Pending thorough evaluation of the distribution in time and space of these features and their evolutionary significance, *A. (H.) tricosa* is left in *Helicaulax,* which seems, as Sohl (1960) suggested, close to *Anchura* s. s. Although the new species, *Anchura (Helicaulax?) popenoei,* is very similar to *A. (H.) tricosa,* it has a much shorter posterior digitation and, thus, is questionably assigned to *Helicaulax.*

Age.—Critical study of *Anchura (Helicaulax)* is needed in order to exclude forms improperly assigned to the subgenus. Sohl (1960) considered *Helicaulax* to be restricted to the Late Cretaceous, but Roy (1994, figures 5, 6) listed it from the Aptian through Maastrichtian stages. On the Pacific Slope, *A. (Helicaulax)* has been identified from strata of Turonian and, if our tentative assignment of *A. (Helicaulax?) popenoei* is correct, Coniacian age.

ANCHURA (HELICAULAX?) POPENOEI new species
Figure 6.7, 6.11–6.13

Diagnosis.—A relatively small *Anchura* with short posterior digitation at its base adjacent to the spire, but not otherwise adnate; sculpture dominantly axial with about 18 slightly curved ribs; about six cords on spire, third and fourth spiral cords coalesced on body whorl, forming angulation and continuing onto extended outer lip.

Description.—Shell medium-sized, high-spired; pleural angle about 22 degrees; whorl profile slightly angulate just anterior to middle on spire and strongly angulate on last whorl; five whorls preserved in holotype; suture appressed; protoconch unknown; varices randomly present but not obvious; growth line antispirally concave on spire. Mature sculpture of slightly arched axial ribs, forming nodes at the periphery, 18 on penultimate whorl, axial ribs weakening on body whorl but persisting as nodes on carina; spiral cords strongest anterior to angulation on ultimate whorl, about six cords showing on spire whorls, third and fourth cords strongest, coalescing and forming noded keel on ultimate whorl and extending onto shank as carina, about six cords anterior of keel on ultimate whorl with second and third strongest. Outer lip expanded, forming narrow shanked wing with additional short posterior digit adjacent to spire.

Remarks.—*Anchura (Helicaulax?) popenoei* is described from one specimen lacking protoconch, rostrum, and outermost portion of wing. Because the wing is broken, the length of the shank is undetermined. The posteriorward extension at the break is probably, considering the position of the carina, part of a secondary spur rather than the inception of the posterior arm. The earliest preserved whorl has many fine equal spiral cordlets, but on the next whorl five cords have begun to dominate the spiral sculpture. It is considerably smaller than *A. (H.) condoniana* Anderson, 1902, and has more convex whorls that are more strongly angulate; its sculpture is less strongly beaded, and its axial ribs are noticeably more arcuate than those of *A. (H.) condoniana.* In whorl profile, shape and beading of ribs, and possession of varices *A. (H.?) popenoei* is most similar to *A. (Helicaulax) tricosa* Saul and Popenoe, 1993. On the spire, *A. (H.?) popenoei* has two cords posterior to the carina rather than three and only about two anterior to the carina. Strength of cords, noding, and axial ribs also resemble those of *A. callosa* and *A. falciformis,* but *A. (H.?) popenoei* is smaller, less high spired, has fewer spiral cords, and the shank to the outer lip is narrower.

Anchura (Helicaulax?) popenoei is questionably included in *Helicaulax* because of its short posterior digitation that is adjacent to the spire at its base. Dockery (1993) includes species with similarly small posterior digitations in *Anchura,* but *A. (H.?) popenoei* bears so great a resemblance to *A. (H.) tricosa* that it is included in the same supraspecific taxon.

Type specimens.—Holotype LACMIP 11342.

Type locality.—UCLA 5990, sandstone cropping out in bed of small NW-flowing gully tributary to French Creek, near south end of Swede Basin, 300'S, 1800'E of NW corner sec. 9, T33N, R2W, Millville quadrangle, Shasta County, California. Collector: W. P. Popenoe, 1/1/1959.

Measured specimens.—See Table 11.

Age.—Coniacian

TABLE 11—Measurements in mm of *Anchura (Helicaulax?) popenoei* new species. For abbreviations and symbols used, see introduction.

Specimen	H	Hp	Db	Dp	Dp/Hp	R	PA	S	Ct	Cp	A	Remarks
LACMIP 11342	24.3	4.2	10.8	8.2	2.0	—	22°	6.0	6	2	18	body + 4 whorls

Geographic distribution.—Redding Formation, Hooten Gulch Mudstone Member (Haggart, 1986), Swede basin, Redding area, Shasta County, California.

Etymology.—For W. P. Popenoe, who collected the holotype, in recognition of his study of aporrhaids of the Redding area.

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ACCEPTED 23 OCTOBER 1995

CITED LOCALITIES

92 CIT (=LACMIP 10100): Concretions in shale 100′ above stream and near fence on N side of Harding Canyon, about 0.25 mi N of road fork in Santiago Canyon at Harding/Modjeska Canyon junction, near section line NW 1/4, NW 1/4 sec. 28, T5S, R7W, Santiago Peak quadrangle, Santa Ana Mountains, Orange County, California. Collected by: B. N. Moore, 1928. Ladd Formation, basal Holz Shale Member; late Turonian.

974 CIT (=LACMIP 10105): SW slope of Aliso-Santiago Creek divide, 475′N, 1200′W of SE corner of sec. 29 and edge of topo sheet, El Toro quadrangle, Santa Ana Mountains, Orange County, California. Collected by: W. P. Popenoe, 1/14/33. Williams Formation, Pleasants Sandstone Member; late middle to early late Campanian, *Metaplacenticeras pacificum* Zone (Matsumoto, 1960, p. 99; Popenoe and Saul, 1987, p. 34; Saul and Popenoe, 1992, p. 60).

1018 CIT (=LACMIP 10833): Fossiliferous layers cropping out in beds of small gullies in field along Durham-Pentz Rd., approximately 0.75 mi W of Pentz, approximately 950′S, 350′E of NW corner sec. 25, T1N, R3E, W side Messila Valley, Cherokee quadrangle, Butte County, California. Collected by: W. P. Popenoe and D. Scharf, 8/19/1931. Chico Formation; late early Campanian

1053 CIT (=LACMIP 10093): First prominent NE-SW spur north of Santiago Creek near junction with Modjeska Creek, 200′N, 2850′E of SW corner sec. 20, T5S, R7W, El Toro quadrangle, Santa Ana Mountains, Orange County, California. Collected by: W. P. Popenoe, 4/9/34. Ladd Formation, upper part of Holz Shale Member; late early Campanian (Matsumoto, 1960, p. 102).

1054 CIT (=LACMIP 10793): Shale beds above conglomerate, near head of Aliso Creek, 1725′N, 1575′W of SE corner sec. 33, T5S, R7W, Santiago Peak quadrangle, Santa Ana Mountains, Orange County, California. Collected by: W. P. Popenoe, 10/14/34. Ladd Formation, upper part of Holz Shale Member; late early Campanian.

1057 CIT (=LACMIP 10794): Shale beds overlying conglomerate lens, about 250′ NW of CIT 1054, 1925′N, 1725′W of SE corner sec. 33, T5S, R7W, Santiago Peak quadrangle, Santa Ana Mountains, Orange County, California. Collected by: W. P. Popenoe, 10/26/34. Ladd Formation, upper part of Holz Shale Member; late early Campanian.

1060 CIT (=LACMIP 8196): Crest of high NE-SW trending ridge between Santiago and Williams Canyons, 1900′N, 1650′E of SW corner sec. 20, T5S, R7W, El Toro quadrangle, Santa Ana Mountains, Orange County, California. Collected by: W. P. Popenoe, 10/14/35. Ladd Formation, uppermost part of Holz Shale Member; early middle Campanian

1158 CIT (=LACMIP 10710): SE slope of Simi Hills, north bank Bell Canyon, 1.15 mi due west of Los Angeles-Ventura County line on boundary (extended) between T1 and 2N, 500′S, 9000′W of NE corner sec. 4, T1N, R17W. Calabasas quadrangle, Ventura County, California. Collected by: W. P. Popenoe, 6/18/35. Chatsworth Formation; middle Campanian.

1159 CIT (=LACMIP 10715): Prominent fossil bed on crest of spur between forks of Dayton Canyon, about 400′E of Los Angeles-Ventura County line, 400′N, 2350′W of SE corner sec. 28, T2N, R17W, Calabasas quadrangle, Los Angeles County, California. Collected by: W. P. Popenoe, H. L. Popenoe, and R. Durbin, 6/21/35. Chatsworth Formation; late middle Campanian (Matsumoto, 1960, p. 103; Popenoe, Saul, and Susuki, 1987, p. 99; Saul and Popenoe, 1992, p. 60).

1527 UCLA: South of Santiago Creek, along Santiago Truck Trail, SW 1/4, SW 1/4 sec. 28, T5S, R7W, Santiago Peak quadrangle, Santa Ana Mountains, Orange County, California. Collected by: T. Bear, 1940. Ladd Formation, Holz Shale Member; probably late early Campanian.

1545 CIT (=LACMIP 8147): Laguna Seca Section, 2500′S, 1300′E of sec. 13, T12S, R10E, on cliff in pebbly bed approximately 50′ above contact with silty clay-stone, Los Baños quadrangle, Merced County, California. Collected by: B. Adams. Moreno Formation, Tierra Loma Shale Member; early late Maastrichtian.

2858 LACMIP: (Webster locality 25) Top of S slope, elevation 272′, N fork of Ammonite Ravine, about 1125 m E of mouth of Ammonite Ravine, E side Arroyo Santa Catarina, about 6.4 km inland from Pacific Ocean, Baja California, Mexico. Collected by: M. Webster, 1966. Rosario Formation; late Campanian-early Maastrichtian.

3632 UCLA: West side Chico Creek about 1/3 mi up deep ravine, 2/3 mi S of Mickey's Place, 1750′S, 25′W of NE corner sec. 11, T23N, R2E, Paradise quadrangle, Butte County, California. Collected by: L. R. and R. B. Saul, 1952. Chico Formation, basal part of Tenmile Member, late Santonian or early Campanian.

3635 UCLA: On E bank of Chico Creek W from HB House and approximately 400′ S of twin meadows, 1800′S, 400′E of NW corner sec. 13, T23N, R2E, Paradise quadrangle, Butte County, California. Collected by: L. R. and R. B. Saul, 8/17/1952. Chico Formation, Tenmile Member, early Campanian.

3637 UCLA: East bank Chico Creek, 1250′N of SE corner sec. 14, T23N, R2E, Paradise quadrangle, Butte County, California.

Collected by: L. R. and R. B. Saul, 8/18/1952. Chico Formation, Tenmile Member, early Campanian.

3643 UCLA: W bank Chico Creek, 1500'S, 2500'W of NE corner sec. 26, T23N, R2E, Paradise quadrangle, Butte County, California. Collected by: L. R. and R. B. Saul, 8/22/1952. Chico Formation, Tenmile Member; early Campanian.

3648 UCLA = LACMIP 10861, 23648: Fossil Bluff, W side Chico Creek, 1750'S, 1800'E of NW corner sec. 35, T23N, R2E, Paradise quadrangle, Butte County, California. Collected by: L. R. and R. B. Saul, 8/21/1952. Chico Formation, Tenmile Member; early middle Campanian.

4082 UCLA: Tuscan Springs, on Little Salt Creek, about 10 mi NE of Red Bluff, near center NE 1/4 sec. 32, T28N, R2W, Tuscan Springs quadrangle, Tehama County, California. Collected by: W. P. Popenoe et al. Chico Formation; early middle Campanian.

4192 UCLA: Hills N of Santiago Canyon on crest of long NE trending ridge, 200'N, 2600'E of SW corner sec. 20, T5S, R7W, El Toro quadrangle, Santa Ana Mountains, Orange County, California. Collected by: M. A. Murphy, W. P. Popenoe and T. Susuki, 2/4/59. Ladd Formation, Holz Shale Member, about 105' below top; late early Campanian, *Submortoniceras chicoense* Zone.

4224 UCLA: From nodules in mine tunnel on E bank of Butte Creek, about 10' above water's edge, 2.8 mi by road NW of Honey Run Road covered bridge, approximately 2000'S, 250'E of NW corner sec. 17, T22N, R3E, Paradise quadrangle, Butte County, California. Collected by: W. P. Popenoe, Aug. 29, 1952. Chico Formation, Ten Mile Member; middle Campanian.

4662 UCLA: N side Mill Creek, approximately 1700'S, 2250'W of NE corner sec. 19, T27N, R2E, Panther Spring quadrangle, Tehama County, California. Collected by: P. U. Rodda, 1954. Chico Formation; late(?) Santonian.

4664 UCLA: Just below contact of volcanics and Cretaceous, mouth of Rancheria Creek, 1700'S, 1550'E of NW corner sec. 19, T27N, R2E, Mill Creek Canyon, Panther Spring quadrangle, Tehama County, California. Collected by: P. U. Rodda, 1954. Chico Formation, Kingsley Cave Member (Haggart and Ward, 1984); late Santonian.

4878 UCLA: Sucia Island from bluffs on S side of Fossil Bay about 1/4 mile E of W (closed) end of the bay, sec. 26, T38N, R2W, San Juan County, Washington. Collected by: W. P. Popenoe, 8/23/1952. Cedar District Formation; middle Campanian.

M5906 USGS: On E side of Dip Creek, 2300'S, 1000'W of NE corner sec. 30, T25S, R10E, Lime Mountain quadrangle, San Luis Obispo County, Santa Lucia Mountains, California. Collected by: D. L. Durham and R. J. McLaughlin, 1969; W. O. Addicott, Koichiro Masuda, D. L. Durham, and T. W. Dibblee, Jr., 1970. Asuncion Formation (Taliaferro, 1944); late late Maastrichtian.

5990 UCLA: Sandstone cropping out in bed of small northwestward-flowing gully tributary to French Creek, near S end of Swede Basin, 300'S, 1800'E of NW corner sec. 9, T33N, R2W, Millville quadrangle, Shasta County, California. Collected by: W. P. Popenoe, 1/1/1959. Redding Formation, Hooten Gulch Mudstone Member; Coniacian.

6044 UCLA: (P 1–72) Soft massive sandstone cropping out on left (east) bank of Butte Creek, just downstream from high bluff at water's edge, and across stream from A-frame house. About 1000'N and 2800'W of SE corner sec. 8, T22N, R3E, Paradise 15 minute (1953) quadrangle, Butte County, California. Collected by: W. P. Popenoe, 6/21/72. Chico Formation, Tenmile Member; late early Campanian.

6950 UCLA: Roadcut N side Silverado Truck Trail, very fossiliferous bed (1'+ thick) immediately below Schultz Conglomerate Member of the Williams Formation, 950'S, 125'W of NE corner sec. 18, T5S, R7W, El Toro quadrangle, Santa Ana Mountains, Orange County, California. Collected by: L. R. Saul, 12/4/81. Ladd Formation, uppermost part of Holz Shale Member; early middle Campanian.

6965 LACMIP: Prominent fossil bed on crest of spur between forks of Dayton Canyon, about 400'E of Los Angeles-Ventura County line, 400'N, 2350'W of SE corner Sec. 33, T2N, R17W, Calabasas quadrangle, Simi Hills, Los Angeles County, California. Collected by: J. Alderson, 1974. Chatsworth Formation; middle Campanian, *Hoplitoplacenticeras bowersi* Zone.

6996 UCLA: N bank of Bell Canyon about 1 mi W of Los Angeles-Ventura County line on the boundary (extended) between T1N and T2N, R17W, Calabasas quadrangle, Simi Hills, Ventura County, California. Collected by: W. P. Popenoe, 3/27/46. Chatsworth Formation; middle Campanian.

7135 UCLA: Fossils collected within 3 m of section in highly fossiliferous zone, W side Horse Canyon near 1800' contour, 1.125 km N, 1.2 km E of SW corner of topo, T9N, R30W, Bates Canyon quadrangle, Sierra Madre Mountains, Santa Barbara County, California. Collected by: Greg Smith, January, 1984. Unnamed formation; late middle or late Campanian.

7235 UCLA: Carlsbad Research Park, N side of Faraday Street from cut slope destined to be used for filling Letterbox Canyon, approximately 0.7 mi N, 1.55 mi W of SE corner of San Luis Rey quadrangle, San Diego County, California. Collected by: L. R. Saul, A. R. Loeblich, and J. Loch, 6/21/1984. Point Loma Formation; late Campanian or earliest Maastrichtian.

8068 LACMIP: Punta San Jose, Baja California, Mexico. Collected by: unknown. Rosario Formation; late Campanian or early Maastrichtian.

M8591 USGS Mesozoic: (J 979–199–11) Manzanita Mountain, Santa Barbara County, California. Approximately 11,400'N and 17,025'W of SE corner Manzanita Mountain quadrangle (1964), altitude approximately 1560' in South Fork La Brea Creek near mouth of Lion Canyon, approximately 1.5 miles NE of Manzanita Mountain. Collected by: J. Joyce and J. Vedder, 1979. Unnamed unit; middle or early late Campanian.

M8611 USGS Mesozoic: Pebbly sandstone just S of head 0.7 mi E of Pigeon Point, latitude 37° 10.86'N, longitude 122° 22.79'W, Pigeon Point 1:24000 quadrangle, San Mateo County, California. Collected by: W. P. Elder, 1990. Pigeon Point Formation; middle to early late Campanian.

M8756 USGS Mesozoic: (91E-16) Sandstone turbidite 100 m NW of small creek, 1 km SE of Pigeon Point, Pigeon Point 1:24000 quadrangle, San Mateo County, California. Collected by: W. P. Elder, 1991. Pigeon Point Formation; middle or early late Campanian.

M8759 USGS Mesozoic: (PPLH-A) W end of beach 200 m NE of Pigeon Point Lighthouse, Pigeon Point 1:24000 quadrangle, San Mateo County, California. Collected by: W. P. Elder, 1991. Pigeon Point Formation; middle or early late Campanian.

A9254 UWBM: Sucia Island, San Juan County, Washington. Latitude 48°46', Longitude 122°52'. Collected by: Peter Ward?, 1972. Cedar District Formation; middle(?) Campanian.

10934 LACMIP: Fossils collected along 1450' outcrop of sandstone bed on N-facing slope of canyon N of Modjeska Canyon, 150'S, 1250'E of SW corner sec. 20, to 600'N, 2600'E of SW corner sec. 20, T5S, R7W, El Toro quadrangle, Santa Ana Mountains, Orange County, California. Collected by: L. J. Czel, 1957. Ladd Formation, Holz Shale Member, uppermost sandstone bed; early middle Campanian.

11950 LACMIP: Approximately 6.4 km inland from Pacific Ocean, on NW wall of Arroyo Santa Catarina near base (approximately 100 m), Baja California, Mexico. Collected by: R. Demetrion, January 1987. Rosario Formation; late Campanian and early Maastrichtian.

14313 LACMIP (=CSUN 1447P): About 450 meters north by northwest of lookout on Warm Springs Mountain, elevation 3460', 47 meters above basement complex—San Francisquito Formation contact in Kirby's measured section number 2 (Kirby, 1991, p. 119), Los Angeles County, California. Collected by: M. X. Kirby, 1990. San Francisquito Formation; late Maastrichtian.

14314 LACMIP (=CSUN 1447G): 460 meters north by northwest

of lookout on Warm Springs Mountain, elevation 3480', 55 meters above basement complex—San Francisquito Formation contact in Kirby's measured section number 2 (Kirby, 1991, p. 119), Los Angeles County, California. Collected by: M. X. Kirby, 1990. San Francisquito Formation; early Danian.

15790 LACMIP: West bank Deer Creek, 160 m N, 240 m E of SW corner sec. 32, T26N, R2E, Panther Spring quadrangle, Tehama County, California. Collected by: John Russell, 1985. Chico Formation, Tenmile Member; early Campanian.

15792 LACMIP: East bank Deer Creek 200 m S, 375 m E of NW corner sec. 5, T25N, R2E, Panther Spring quadrangle, Tehama County, California. Collected by: John Russell, 1986. Chico Formation, Tenmile Member; early to early middle Campanian, *Submortoniceras chicoense* Zone.

27135 LACMIP [=7135 UCLA]: Fossils collected within 3 m section in highly fossiliferous zone, W side Horse Canyon, near 1800' contour, 1.125 km N, 1.2 km E of SW corner of topo, T9N, R30W, Bates Canyon quadrangle, Sierra Madre Mountains., Santa Barbara County, California. Collected by: G. Smith, January 1984. Unnamed Formation; late Campanian.

27838 CASG: Chico Creek, 3.6 miles from "10 Mile House" on Humboldt Road, U.S.G.S. Chico quadrangle (1895, reprint 1932), Butte County, California. Collected by: H. A. Taff, G D., Hanna, and C. M. Cross, May, 1934. Chico Formation, Tenmile Member; early Campanian.

28323 CASG: Gully on N side of Del Puerto Creek, 1000' below conglomerate, SW 1/4, 1/4 of sec. 35, T5S, R6E., Copper Mountain 1:24000 quadrangle, Stanislaus County, California. Collected by: J. A. Taff, 1935. Panoche Formation; early Santonian(?).